

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for transporting files from a cable headend, comprising:
for each of the files:
transforming a file identifier of the file into a respective data identifier (DID);
determining a packet identifier (PID) based on the DID, wherein the PID is associated with a communications channel selected to transport said file;
determining a first identifier based on the DID; and
transmitting, from the headend via the communications channel, one or more packets associated with the file, each of the one or more packets including the PID and the first identifier, wherein said first identifier is adapted to enable receivers of said communications channel to selectively receive one or more packets associated with the file among packets transported via the communications channel;
wherein, for each of the files, the determining the first identifier based on the DID further comprises:
dividing the DID into at least two portions; and
performing one of:
performing an XOR operation on two of the at least two portions to determine the first identifier; or

concatenating at least two of the at least two portions to
determine the first identifier.

2. (Original) The method of claim 1, wherein said communications channel transports an MPEG 2 bitstream.

3. (Original) The method of claim 1, wherein said communications channel transports Digicipher II data packets.

4. (Previously Presented) The method of claim 1, wherein said communications channel transports Service Information (SI) data packets.

5. (Previously Presented) The method of claim 1, wherein, for each of said files, said DID is generated with an approximately uniform probability distribution.

6. (Previously Presented) The method of claim 1, wherein the first identifier is a payload identifier.

7. (Previously Presented) The method of claim 1, wherein the first identifier is a multicast identifier.

8. (Previously Presented) The method of claim 7, further comprising:
detecting a collision condition in which two packets, associated with different files
having different file identifiers associated therewith, have identical PIDs and identical
first identifiers;
determining a non-colliding first identifier for one of the two packets;
transmitting information associating the file associated with the one of the
two packets with the non-colliding first identifier; and
transmitting one or more packets, of the file associated with the one of the
two packets, using the non-colliding first identifier.
9. (Previously Presented) The method of claim 8, wherein the non-colliding
first identifier is formed by adding a constant to the first identifier for which the collision
condition is detected.
10. (Previously Presented) The method of claim 1, wherein the file identifier
is a file name or a binary number.

11. (Previously Presented) The method of claim 1, wherein, for each of the files, said transforming step comprises:

calculating the DID based on one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number formed from the respective file identifier.

12. (Previously Presented) The method of claim 11, wherein, for each of said files, the associated PID is determined by:

- (i) determining a PID index by the equation:

$$\text{PID index} = X \text{ modulo NPIDSON},$$

where PID index is an index into a table, X is a result of performing at least one XOR operation on two or more portions of the DID, and NPIDSON is a predetermined number;

- (ii) performing a table lookup using the PID index as a lookup parameter; and
(iii) adding an offset to a value output by the table lookup to determine the PID.

13. (Previously Presented) The method of claim 11, further comprising transmitting a PID usage bitmap that identifies which PIDs are being used to transmit payload data.

14. (Canceled)

15. (Previously Presented) The method of claim 1, wherein, for each of the files, the first identifier is formed by performing an XOR operation on two non-contiguous portions of the DID.

16. (Previously Presented) The method of claim 1, wherein, for each of the files, the first identifier is a the multicast identifier formed by performing an XOR operation on two non-contiguous portions of the DID, wherein the method further comprises:

for each of the files, determining a second identifier based on the DID of the file, wherein the second identifier is a payload identifier formed by concatenating at least two portions of the DID.

17. (Previously Presented) The method of claim 1, wherein each of the files is transported using one of the group consisting of Moving Picture Experts Group (MPEG) 1 packets and MPEG 2 packets.

18. (Previously Presented) The method of claim 1,
wherein, for each file, the first identifier is a multicast identifier determined by
selecting a first portion of the DID, wherein the method further comprises:
for each of the files, determining a second identifier based on the DID of the file,
wherein the second identifier is a payload identifier determined by selecting a second
portion of the DID.

19. (Currently Amended) A method for receiving a file from a server, the file having a file identifier associated therewith, the method comprising the steps of:

- determining a data identifier (DID) from the file identifier of the file; and
- determining a packet identifier (PID) based on the DID, wherein the PID is associated with a communications channel used to transport said file;
- determining a first identifier based on the DID; and
- selectively receiving one or more packets associated with the file, among packets transported via the communications channel, using the PID and the first identifier;

wherein, for each of the files, the determining the first identifier based on the DID further comprises:

- dividing the DID into at least two portions; and
- performing one of:
 - performing an XOR operation on two of the at least two portions to determine the first identifier; or
 - concatenating at least two of the at least two portions to determine the first identifier.

20. (Previously Presented) The method of claim 19, wherein the DID is determined based on a common function that is also used by the server to calculate the DID when the server determines which DID to assign to the packet.

21. (Previously Presented) The method of claim 19, wherein the DID is determined using one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number generated using the file identifier as an input, the method further comprising:

selecting at least one portion of the DID as a second identifier, wherein the second identifier is a payload identifier; and

detecting payload data having the payload identifier transmitted therewith as the desired data.

22. (Previously Presented) The method of claim 19, wherein the first identifier is a multicast identifier, wherein the multicast identifier is formed by performing an XOR operation on two non-contiguous portions of the DID.

23. (Previously Presented) The method of claim 19, further comprising:

determining a second identifier based on the DID;

detecting a collision condition in which a received packet has a first identifier that matches the first identifier determined using the DID, but a second identifier associated with the received packet is different from the second identifier determined based on the DID;

receiving information associating the DID with a non-conflicting first identifier; and

receiving the one or more packets using the non-colliding first identifier.

24. (Previously Presented) The method of claim 19, wherein the DID is a 64-bit number, wherein the first identifier is a 16-bit number determined by selecting a 16-bit portion of the DID or by performing an XOR on two non-contiguous 16-bit portions of the DID.

25. (Currently Amended) A method for transmitting data, comprising the steps of:

calculating a plurality of data identifiers (DIDs) based on respective identifiers associated with respective sets of at least one packet;

associating each set of at least one packet with the respective DID calculated from the identifier for that set of at least one packet; and

calculating a plurality of packet identifiers (PIDs) based on the respective DIDs calculated for the respective sets of at least one packet; and

transmitting, to a receiver associated with one of the plurality of PIDs, a list including a respective DID for each set of at least one packet associated with the same PID as the receiver;

wherein, for each of the sets of at least one packet, the calculating a plurality of data identifiers (DIDs) further comprises:

dividing the DID into at least two portions; and

performing one of:

performing an XOR operation on two of the at least two portions to determine a first identifier; or

concatenating at least two of the at least two portions to determine a first identifier.

26. (Previously Presented) The method of claim 25, wherein said DID is generated with an approximately uniform distribution.

27. (Previously Presented) The method of claim 25, further comprising:

for each set of at least one packet:

determining a multicast identifier based on the DID associated with the set of at least one packet;

detecting a collision condition in which two packets associated with different ones of the sets of at least one packet have the same multicast identifier associated therewith;

determining a non-colliding multicast identifier for one of the two packets;

transmitting information associating the set of at least one packet associated with the one of the two packets with the non-colliding multicast identifier; and

transmitting one or more packets, of the set of at least one packet associated with the one of the two packets, using the non-colliding multicast identifier.

28. (Currently Amended) A method for receiving data, comprising the steps of:

(a) calculating a packet identifier (PID) based on an identifier associated with a desired set of at least one packet, the PID being associated with a receiver of the set of at least one packet; and

(b) receiving a list associated with the PID, the list containing a plurality of data identifiers (DIDs), each DID in the list corresponding to a respective set of at least one packet that is to be received using that PID;

wherein, for each of the respective set of at least one packet, the receiving the list containing the DIDs further comprises receiving DIDs that have been divided into at least two portions, wherein an XOR operation has been performed on two of the at least two portions to determine the first identifier or at least two of the at least two portions have been concatenated to determine a first identifier.

29. (Previously Presented) The method of claim 28, further comprising:
receiving a PID usage bitmap that identifies which PIDs are being used to transmit payload packets; and

determining whether the desired set of at least one packet is available using the PID usage bitmap and the calculated PID for the desired set of at least one packet.

30. (Previously Presented) The method of claim 29, further comprising:

detecting a file-not-found condition if the calculated PID

for the desired set of at least one packet is identified as not being used to transmit data in the PID usage bitmap.

31. (Previously Presented) The method of claim 29, further comprising:

detecting a file-not-found condition if the calculated PID for the desired set of at least one packet is identified as being used to transmit data in the PID usage bitmap, and the DID corresponding to the desired set of at least one packet is not included in the list containing the plurality of DIDs for that receiver.

32. (Currently Amended) A system for transmitting a file from a sender to a receiver, the system comprising:

a sender storage medium for storing said file, said file having a corresponding file identifier;

a converter for converting the contents of said file into one or more packets to be transmitted; and

a sender transformer for:

transforming the file identifier into a respective data identifier (DID);

determining a packet identifier (PID) based on the DID, wherein the PID is associated with a communications channel; and

determining a first identifier based on the DID;

wherein said converter is adapted to incorporate the PID and the first identifier into the one or more packets for transmission toward said receiver via the communications channel; and

wherein, for each of the files, the determining the first identifier based on the DID further comprises:

dividing the DID into at least two portions; and

performing one of:

performing an XOR operation on two of the at least two portions to determine the first identifier; or

concatenating at least two of the at least two portions to
determine the first identifier.

33. (Previously Presented) The system of claim 32, wherein the system further comprises a receiver, wherein said receiver is adapted to determine the first identifier using the file identifier and is further adapted to use the first identifier to selectively receive one or more packets associated with the file among packets transported via the communications channel.

34. (Previously Presented) The system of claim 32, wherein the server transmits a PID usage bitmap that identifies which PIDs are being used to transmit payload data.

35. (Previously Presented) The system of claim 32, wherein the system further comprises a receiver that includes:

a processor for calculating the PID for a desired set of at least one packet using the same calculation used by the server to calculate the PID for the at least one packet, and

the processor detects a file-not-found condition if the PID for the desired at least one packet is not listed in a PID usage bitmap as being used to transmit pay load data.

36. (Currently Amended) A system for receiving a desired file from a provider, comprising:

a client processor configured to:

transform a file identifier of a desired file into a respective data identifier (PID);

determine a packet identifier (PID) based on the PID, wherein the PID is associated with a communications channel;

determining a first identifier based on the DID; and

use at least the first identifier to select one or more packets associated with the desired file, from among packets transported via the communications channel;

wherein the client processor determines the DID, PID, and first identifier based on one or more common functions used by the provider to determine the DID, PID, and first identifier for the one or more packets before transmitting the one or more packets associated with the desired file via the communications channel;

wherein, for each of the files, the determining the first identifier based on the DID further comprises:

dividing the DID into at least two portions; and

performing one of:

performing an XOR operation on two of the at least two portions to determine the first identifier; or

concatenating at least two of the at least two portions to determine the first identifier.

37. (Previously Presented) The system of claim 36, wherein the client processor generates the DID with an approximately uniform probability distribution.

38. (Previously Presented) The system of claim 36, wherein the first identifier is a multicast identifier wherein the client processor determines the first identifier by performing an XOR on at least two non-contiguous portions of the DID.

39. (Previously Presented) The system of claim 38, wherein the client processor is further configured to:

determine a second identifier based on the DID;

detect a collision condition in which a received packet has a first identifier that matches the first identifier determined by the client processor using the DID, but a second identifier associated with the received packet is different from the second identifier determined by the client processor using the DID;

receive information associating the DID with a non-colliding first identifier; and

receive the one or more packets associated with the desired file using the non-colliding first identifier.

40. (Previously Presented) The system of claim 36, wherein the file identifier is a filename of the file or a binary number associated with the file.

41. (Previously Presented) The system of claim 36, wherein the client processor calculates the DID based on one of the group consisting of a cyclic redundancy code, a hash function and a pseudorandom number formed from the file identifier.

42. (Currently Amended) A computer readable medium encoded with computer program code, wherein when the computer program code is executed by a server processor, the server processor performs a method for transmitting one or more packets of a file, the method comprising the steps of:

determining a data identifier (DID) based on a file identifier of the file;
determining a packet identifier (PID) based on the DID;
determining a first identifier based on the DID;
assigning said PID and said first identifier to each of said one or more packets;

and

transmitting said one or more packets toward a receiver;

wherein, for each file, the determining the first identifier based on the DID further comprises:

dividing the DID into at least two portions; and

performing one of:

performing an XOR operation on two of the at least two portions to determine the first identifier; or

concatenating at least two of the at least two portions to determine the first identifier.

43. (Currently Amended) A method of transmitting payload data from a headend to a television converter, comprising the steps of:

spinning a plurality of data units from the group consisting of packets and files without transmitting a directory of all of the data units being spun; and

calculating information used to spin the units of data by a common calculation that is used by the television converter to receive the units of data without a directory of all of the data units being spun;

wherein, for each file, the calculating information used to spin the units of data by a common calculation that is used by the television converter to receive the units of data without a directory of all of the data units being spun further comprises:

determining a data identifier (DID) based on a file identifier of a file;

divides the data identifier into at least two portions; and
performing one of:

performing an XOR operation on two of the at least two portions to determine a first identifier; or

concatenating at least two of the at least two portions to determine the first identifier.

44. (Currently Amended) In a system including at least one file storage medium, said file storage medium including at least one file to be transported from a file sender to a file receiver, wherein each of said at least one file to be transported has associated therewith a corresponding file identifier, a sender comprising:

a packetizer;

a transform;

a multiplexer;

at least one file manager communicating with said file storage medium, said packetizer and said transform such that each of said at least one file on said file storage medium is provided to said packetizer and said corresponding at least one file identifier is provided to said transform;

said transform, for each of said at least one file, determining a data identifier (DID) based on the file identifier of the file, determining a packet identifier (PID) based on the DID, determining a first identifier based on the DID, and providing the PID and the first identifier to the packetizer;

said packetizer, for each of said at least one file, providing at least one corresponding data packet comprising said file to said multiplexer;

said multiplexer, for each of said at least one file, providing a packetized bitstream including said file to be transported, each packet of said bitstream including at least a portion of said file;

wherein, for each file, the transform determining the first identifier based on the DID further:

divides the DID into at least two portions; and
performs one of:
performing an XOR operation on two of the at least two
portions to determine the first identifier; or
concatenating at least two of the at least two portions to
determine the first identifier.

45. (Previously Presented) The system of claim 44 further including a data carousel in communication with said packetizer and said multiplexer, wherein said packetizer provides said packets to said data carousel based upon said corresponding PID.

46. (Currently Amended) In a system including at least one file storage medium including at least one file to be transported from a sender to a receiver, wherein each of said at least one file to be transported has associated therewith a corresponding file identifier, a receiver comprising:

at least one tunable filter;

a transform;

a packet processor; and

a processor programmed to utilize said at least one file to be transported;

said processor, for each of said at least one file, providing said file identifier of said file to said transform;

said transform, for each of said at least one file, determining a data identifier (DID) based on the file identifier of the file, determining a packet identifier (PID) based on the DID, and providing the PID corresponding to said file to a tunable filter such that said tunable filter selects packets comprising said file and provides said selected packets to said packet processor;

said packet processor providing said file to said processor;

wherein, for each file, the transform determining the first identifier based on the DID further:

divides the DID into at least two portions; and

performs one of:

performing an XOR operation on two of the at least two portions to determine the first identifier; or

concatenating at least two of the at least two portions to
determine the first identifier.